PERALES, ALLMON & ICE, P.C.
ATTORNEYS AT LAW
1206 San Antonio Street
Austin, Texas 78701
(512) 469-6000 • (512) 482-9346 (facsimile)
info@txenvirolaw.com

Of Counsel:
David Frederick
Richard Lowerre
Brad Rockwell

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David Gray, Acting Regional Administrator
Environmental Protection Agency, Region 6
1201 Elm Street, Suite 500
Dallas, TX 75270

Via email: Gray.David@epa.gov

Re: Comments and Petition for objection regarding Application of Port of Corpus Christi Authority of Nueces County for TPDES Permit No. TX0138347 (WQ0005253000)

Dear Acting Administrator Gray:

Port Aransas Conservancy ("PAC") respectfully submits these comments regarding the Application of Port of Corpus Christi Authority of Nueces County for TPDES Permit No. TX0138347 (WQ0005253000) (the "Application"). For the reasons provided below, EPA review of the permit is appropriate, and PAC hereby petitions EPA to recommend that the permit be denied. Denial is appropriate since the proposed discharge is not protective of designated uses in the receiving waters, is not necessary for important economic or social development, and the proposed Permit fails to include technology-based effluent limits. Each of these reasons is an independent and sufficient basis for denial of the Application.

EPA Review is proper, since the proposed discharge is for a "major" facility.

PAC supports EPA's review of the Application, and wishes to note that TCEQ erred in not initially providing the application and draft permit to EPA for review. The 2020 Memorandum of Agreement between TCEQ and EPA at IV.C.1.f provides that EPA does not waive review for "designated major facilities." The determination of whether a facility is considered "major" or "minor" is determined based upon use of a standard worksheet under which a facility with more than 80 points is determined to be "major." In this case, TCEQ completed this worksheet in a manner that assigned only 44.5 points to the Port's proposed application.[1] But, TCEQ's completion of this worksheet was characterized by errors that grossly underestimated the significance of the facility.

[1] *See* Exhibit 1 to this submittal (TPDES Permit Rating Worksheet completed by TCEQ for the Port's Permit at issue).

TCEQ's consideration of Factor 1 ("Toxic Pollutant Potential") on this worksheet erroneously found that the discharge does not contain process waste streams. This is directly contrary to TCEQ rules, EPA rules, EPA guidance and EPA precedent for such discharges. "Process wastewater" is defined as "any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product."[2] In this case, the water discharged includes, and comes into contact with, residuals of the water treatment process, which constitute a waste product. In December of 2011 EPA issued the report, "Drinking Water Treatment Plant Residuals Management Technical Report: Summary of Residuals Generation, Treatment, and Disposal at Large Community Water Systems," providing guidance for the determination of technology based limits for drinking water treatment plants.[3] This guidance identifies residuals from the water treatment process as "process wastewater."[4] Specifically, coagulation and flocculation are processes identified as producing contaminants at such facilities.[5] Further, reverse osmosis membrane desalination is a treatment process identified as subject to this guidance.[6] The discharge from the Port's facility will include residuals from the water treatment process. Thus, the discharge from the Port's facility will include "process waste streams."

Considering that the discharge includes process waste streams, the assignment of a value under Factor 1 requires the determination of the appropriate industrial category for the discharge. Within the categories provided in the worksheet instructions, the proposed facility falls most nearly within the "water transportation" classification, associated with SIC Codes 4493 and 4499. The resultant total toxicity for the discharge for Factor 1 properly would be determined to be 5. Thus, *the proper value for Factor 1 should have been 25, instead of 0.*

TCEQ's consideration of Factor 2 ("Flow/Stream Flow Volume") also reflected TCEQ's erroneous determination that the discharge contained no process wastewater. As a discharge containing process wastewater, the Port's discharge is properly considered "Type II" wastewater. Due to the discharge quantity in excess of 10 mgd, *the proper value for Factor 2 should have been 50 instead of 30.*

TCEQ's consideration of Factor 6 ("Proximity to Near Coastal Waters") reflected TCEQ's obvious error of determining that the facility does not discharge into an estuary protected by the National Estuary Protection (NEP) program. In truth, the discharge occurs within the boundaries of the Coastal Bend Bays and Estuaries Program.[7] Accordingly, *the proper value for Factor 6 should have been 40, instead of 4.5.*

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[2] 30 TAC § 308.1 (Incorporating by reference 40 C.F.R. § 125.2, incorporating by reference 40 C.F.R. § 122.2).

[3] USEPA "Drinking Water Treatment Plant Residuals Management Technical Report: Summary of Residuals Generation, Treatment, and Disposal at Large Community Water Systems," EPA 820-R-11-003 (referred to herein as "EPA Drinking Water Treatment Guidance").

[4] *Id.* at 4-1.

[5] *Id.* at 7-2.

[6] *Id. at 6-9.*

[7] *See* https://gispub2.epa.gov/NEPmap/index.html; *see* PDF of NEP map, attached as Exhibit 2.

Had TCEQ properly completed the applicable Major/Minor worksheet, it would have shown that the proposed facility warrants a score of 125, well-exceeding the 80 point threshold for determination that a facility is "Major." Accordingly, TCEQ erred in failing to submit the application for EPA review from the beginning of the permitting process.

EPA should recommend denial of the Permit since a discharge at the proposed location is not protective of designated uses of the receiving waters in violation of the Tier 1 Anti-Degradation Requirements of 30 Texas Administrative Code ("TAC") § 307.5(b)(1).

Under a Tier 1 anti-degradation review, any permitted discharge must be protective of existing uses in the receiving waters.[8] The designated uses of the receiving waters for the discharge include primary contact recreation, exceptional aquatic life use, and oyster waters.[9] The permit should be denied because the proposed discharge fails to protect these uses of the receiving waters.

The proposed discharge results in the significant elevation of salinity within a sensitive ecological environment.[10] The discharge will potentially have a salinity of 68.7 parts per thousand (ppt), and the Executive Director has concluded that the water at the boundary of mixing zone will have 8.9 % of the concentrated saline effluent. That percentage of the effluent at the boundary of the mixing zone will result in increases in salinity levels there of more than 10%. Under these circumstances, the salinity in the receiving waters outside the mixing zone will potentially be raised by more than 4ppt. This exceeds the amount of 3 ppt which the published literature has found to be a level that results in significant adverse impacts upon aquatic life.[11]

During the initial hearing regarding this application, significant testimony was presented from experts who hold or have held positions at the University of Texas Marine Science Institute in Corpus Christi, including Dr. Andrew Esbaugh, Dr. Brad Erisman, Dr. Scott Holt, and Dr. Greg Stunz. These experts explained the great ecological value and sensitivity of the area and the devastating consequences that the discharge would potentially have upon the aquatic wildlife in

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[8] 30 TAC § 307.5(a)(1).

[9] 30 TAC § 307.10(1).

[10] The figures for the mixing performance of the diffuser are from the TCEQ's modeling using the CORMIX model. PAC's experts disagree that this model can provide reliable figures for mixing, given the 95 foot hole below the diffuser and the presence of eddies at this location. The CORMIX model cannot address conditions when a dense salinity plume drops into a hole or when it is recirculated by eddies in the mixing zones. However, even the TCEQ's modeling results show that the discharge proposed by the Port will have very significant impacts on the sensitive early life species of fish and shellfish that migrate from the Gulf to their nursery grounds in Corpus Christi Bay through Aransas Pass.

[11] Voorhees, J., *et al.,* "Hyper-Salinity Toxicity Thresholds for Nine California Ocean Plan Toxicity Test Protocols," Arch Environ Contam Toxicol (2013) 65:665–670; *See also,* Southern California Coastal Water Research Project, "Management of Brine Discharges to Coastal Waters: Recommendations of a Science Advisory Panel," Technical Report 694, at p.14, § 4.3 (Recommendations) (2012) ("Based on published studies, a salinity increment of less than about 2 to 3 psu would seem to be protective of local ecosystems. . . . in embayments with limited flushing, thresholds may be lower in anadromous fish such as salmonids or estuarine demersal flatfish, which undergo saltwater acclimation and significant endocrine alterations.").

the area.[12] Texas Parks and Wildlife Department has also raised similar concerns.[13] In their proposal for decision, the administrative law judges ("judges") noted that the Executive Director's own witness admitted that adding 1.34% of effluent at the edge of the mixing zone could be the tipping point for a system on the edge of collapse.[14] Accordingly, the judges concluded that a change in salinity of even a small amount could not be considered insignificant at this location. For this reason, the judges concluded that the Port had not demonstrated compliance with the Tier 1 anti-degradation requirements of 30 TAC § 307.5(b)(1).[15]

The revised permit now under consideration on remand only aggravates the potential aquatic impact of the discharge. In fact, the concentration of effluent at the edge of the mixing zone is even greater than that addressed by the judges during the initial hearing. Considering that the proposed discharge is not protective of designated uses of the receiving waters, the permit should be denied.

Denial of the permit is particularly appropriate considering that the modeling utilized to predict the impacts of the discharge is fundamentally flawed as noted above. The discharge will occur in the immediate vicinity of a significant bathymetric depression where hypersaline water would tend to accumulate. Yet, the modeling does not consider this feature. Thus, the concentration of effluent in the receiving waters will likely be be higher and exposure times longer than those assumed by the Port and the Executive Director.

The Port has attempted to argue that whole effluent toxicity (WET) testing results demonstrate that the effluent will not be harmful to aquatic life. However, the life stages and species of organisms utilized in the WET testing done by the Port are much more tolerant of high salinity than the life stages and organisms that actually will be subjected to the discharge. Furthermore, the proposed WET testing in the draft permit is not in accordance with EPA protocol, as it does not employ proper dilutions and does not employ species that are appropriate surrogates for the most sensitive species in the receiving environment.

Finally, neither the Port nor the ED have made any attempt to evaluate the potential impact of the discharged chemicals used in the water treatment process on the receiving waters or aquatic life. As noted by the EPA, the typical coagulants and flocculants added to the raw water include various metal salts such as aluminum sulfate, aluminum chloride, ferrous sulfate, and ferric chloride, as well as polyelectrolytes.[16] While the Applicant has indicated in its application that coagulants, flocculants and other chemicals will be used in the desalination process, the Applicant has not stated which coagulants or flocculants will be used and the ED has made no attempt to

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[12] *See* Excerpts of testimony by Dr. Brad Erisman, Dr. Gregory Stunz, Dr. Scott Holt, and Dr. Andrew Esbaugh, attached as Exhibit 3.

[13] *See* Aug. 24, 2018 comments on Permit No. WQ000253000 from Texas Parks & Wildlife Department ("TPWD") to TCEQ, attached as Exhibit 4; Jan. 1, 2019 comments from TPWD to TCEQ, attached as Exhibit 5.

[14] SOAH Docket No. 582-20-1895, TCEQ Docket No. 2019-1156-IWD, February 5, 2021 Proposal for Decision at p. 40.

[15] *Id.*

[16] EPA Drinking Water Treatment Guidance, EPA 820-R-11-003, at p.6-5, § 6.1.2.

evaluate these chemicals that will be discharge into the Aransas Pass Tidal Inlet as part of its review.

EPA should recommend denial of the Permit because the discharge will cause a greater than* de minimis *lowering of water quality without demonstration of necessity for important economic or social development in violation of the Tier 2 Anti-Degradation Requirements of 30 TAC § 307.5(b)(2).

In conformance with EPA's minimum requirements, TCEQ's water quality standards provide that no permit may be issued that would cause degradation of receiving waters unless it is shown that the lowering of water quality is necessary for important economic or social development.[17] The Port's latest attempt to address this requirement – set forth in the Port's response to the ED's Request for Clarification - notes that the ED's Implementing Procedures provide that: "New discharges that use less than 10% of the existing assimilative capacity of the water body at the edge of the mixing zone are usually not considered to constitute potential degradation as long as the aquatic ecosystem in the area is not unusually sensitive to the pollutant of concern."[18] It appears that the ED has accepted 1) that the discharge uses less than 10% of the assimilative capacity of the water body at the edge of the mixing zone and 2) that the aquatic ecosystem is not unusually sensitive to any of the pollutants of concern.

In fact, the Executive Director states that a "Tier 2 review has preliminarily determined that no significant degradation of water quality is expected in Corpus Christi Bay, which has been identified as having exceptional aquatic life use. Existing uses will be maintained and protected."[19] This conclusion is absurd considering the magnitude of the discharge, the sensitivity of the aquatic environment near the discharge, and the devastating impacts that the discharge would have. Further, even if the Executive Director's assertion were true, the Tier 2 review requires a showing of economic or social necessity if *any* degradation of fishable swimmable waters will occur. The lack of "significant" degradation does not excuse an applicant from a demonstration of necessity.

In its preamble to prior revisions of EPA's rules governing water quality standards, EPA agreed with the view of the federal courts that, "the implied de minimis provision authority [of a state] is narrow in reach and tightly bounded by the need to show that the situation is genuinely de minimis or one of administrative necessity."[20] In the same rulemaking, EPA went on to say that, "a determination of when matters are truly de minimis naturally will turn on the assessment of

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[17] 30 TAC § 307.5(b)(2).

[18] Port of Corpus Christi Authority's July 29, 2021 Response to Executive Director's Requests for Clarification, at 9.

[19] ED's Statement of Basis/Technical Summary and Executive Director's Preliminary Decision, Antidegradation Review (Revised August 26, 2021).

[20] Water Quality Standards Regulatory Revisions, 80 Fed. Reg. 51020, 51034 – 51035 (Aug. 21, 2015) (Excerpted at Appendix E to this Petition, with emphasis added therein) quoting *Kentucky Waterways* at 483, and *Alabama Power v. Costle*, 636 F.2d. 323, 361 (D.C. Cir. 1979).

particular circumstances, and *the agency will bear the burden of making the required showing.*"[21] TCEQ has not met that burden with regard to the Port's application.

The judges in this case concluded that "The sensitivity of the proposed discharge location is essentially undisputed," and ultimately held that "the Port Authority has not met its burden to prove that the proposed discharge will not adversely impact the marine environment, aquatic life, and wildlife, including spawning eggs and larval migration." Despite these findings, the TCEQ inexplicably continues to maintain that a Tier 2 review is not necessary.

The performance of a full Tier 2 review is an important element of public participation in the permitting process. In this case, comments were filed stating that the discharge should be moved offshore. The feasibility of such an alternate location is relevant to a determination of whether the permitting of a discharge at the location in the inlet near Harbor Island is necessary. Yet, the Executive Director offered no substantive response, merely saying:

> The Executive Director does not have the authority to mandate a different discharge location. The Executive Director evaluates applications for wastewater discharges based on the information provided in the application.[22]

This terse refusal to engage in a full Tier 2 alternatives analysis is fundamentally contrary to the public participation requirements of the Clean Water Act and EPA guidance on implementation of the Tier 2 anti-degradation standard.[23]

The Port's proposed discharge is not necessary for important economic or social development. The critical problem with the Port's proposed discharge is the *location* of the discharge in an ecologically sensitive area. A sufficiently offshore location would avoid the catastrophic ecological impacts that the Port's proposed discharge would cause, and no demonstration has been made that such a location is infeasible.

Since issuance of the Permit would violate the Tier 2 anti-degradation review requirements of 30 TAC § 307.5(b)(2), EPA should recommend denial of the Permit.

EPA should recommend denial of the Permit because the Permit fails to include adequate technology-based effluent limitations.

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[21] Water Quality Standards Regulatory Revisions, 80 Fed. Reg. 51020, 51034 – 51035 (Aug. 21, 2015)(emphasis added), *citing Kentucky Waterways and quoting Greenbaum v. U.S. Envtl Prot. Agency,* 370 F.3d 527, 534 (6th Cir. 2004).

[22] Executive Director's Response to Public Comment, p. 38.

[23] Memorandum re: Tier 2 Antidegradation Reviews and Significance Thresholds, Ephraim S. King, Director USEPA Office of Science and Technology, August 10, 2005 ("It is important that states and tribes set their significance thresholds at a level that can be demonstrated to be consistent with the purpose of tier 2 antidegradation requirements. Otherwise, a new or increased discharge may result in significant degradation that will not be subject to antidegradation review, and decisions about the lowering of water quality in high quality waters may be made without public consideration of necessity and importance, resulting in the loss or diminishment of a valuable natural resource.").

The proposed discharge is subject to technology-based effluent limitations developed through the application of best professional judgment (BPJ), since no effluent limitation guidelines have been developed that are applicable to the proposed discharge.

As noted above, EPA has issued guidance in the evaluation of technology-based effluent limitations for drinking water treatment plant residuals. The best professional judgment analysis for such a facility must include consideration of the particular chemicals contained in the additives used in the treatment process (such as coagulants and flocculants), as well as permit limits in light of the contaminants contained within the intake water that are concentrated as a result of the water treatment process.[24]

The Executive Director has not engaged in a genuine BPJ analysis to develop technology-based effluent limits for the Port's proposed discharge. The full extent of the documentation of the ED's BPJ analysis is a sentence stating that "monitoring and reporting requirements for total suspended solids have been included in the draft permit at Outfall 001 based upon BPJ due to the potential for suspended solids to be present in the discharge."[25] This does not impose any limit whatsoever that would ensure implementation of proper technology at the facility. No analysis of available technologies to reduce the contaminants in the discharge has been performed. The Executive Director has not considered the nature of the chemicals being used as additives at the facility. In fact, the Executive Director has wholly failed to require the Port to even identify with any specificity what chemicals will be utilized as additives at the facility beyond chlorine. Thus, the Executive Director is ready to issue a discharge permit without even knowing what additives will be contained in the discharge. If this is the process that is used, why is there even a review process? The regulatory process in place requires a meaningful review of what is actually expected to occur—and the TCEQ has not undertaken any such review in this case.

Additionally, no meaningful consideration has been made of the proper technology limits that should be set in consideration of raw water constituents that will be concentrated through the treatment process. While the Port has provided some sampling of water in the vicinity of the intake structure, that sampling utilized EPA methods intended for the analysis of discharged wastewater, rather than the use of more accurate methods for the evaluation of contaminants in ambient water in accordance with proper EPA protocols.

Salinity has the potential to catastrophically impact the aquatic life in the area of the discharge, but other contaminants contained in the wastewater as a result of additives utilized and constituents of the intake water also have a significant potential to have adverse impacts.[26] Technology limits to address both salinity and other potential contaminants must be included in the permit, but are not. Accordingly, PAC asks that EPA recommend denial of the Permit.

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[24] *See, e.g.,* Technical Analysis for Determination of Technology-Based Permit Limits for the Guaynabo Drinking Water Treatment Facility NPDES No. PR0022438, USEPA Region 2, EPA 821-R-11-006.

[25] Statement of Basis/Technical Summary and Executive Director's Preliminary Decision, p. 4.

[26] See March 2021 Proposed Harbor Island Seawater Reverse Osmosis Desalination Facility: A Prospective Evaluation of Ecotoxicological Risk, Kirstin Nielsen, PhD, Marine Science Institute, The University of Texas at Austin, attached as Exhibit 6.

Conclusion

For these reasons, PAC asks that the EPA recommend denial of the Permit since the proposed discharge is not protective of the designated uses at this location, degrades water quality without the required showing of necessity, and the Permit lacks sufficient technology-based effluent limits.

Respectfully submitted,

Eric Allmon
State Bar No. 24031819
FREDERICK, PERALES, ALLMON & ROCKWELL, P.C
1206 San Antonio
Austin, Texas 78701
512-469-6000 (t)
512-482-9346 (f)

cc: James McGuire
Charles Maguire
Renea Ryland